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SUMMARY REPORT ON
STATUS OF AIRPORT PLANNING
(TORONTO II)

MUNICIPAL PLANNING CONSULTANTS CO. LTD.	
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PROVINCE OF ONTARIO

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RECOMMENDATION

In the Ontario Government's evaluation of these alternatives, the Ontario Government has come to a conclusion that the preferred solution lies in a combination of these options - Alternative II using site B with Alternative IV. This would involve a moderate expansion of Malton beyond the current phase II, together with the development of a major eastern airport site as soon as possible to serve as a regional airport, for all freight and charter flights and which will take over some of Malton's future regular passenger service requirements.

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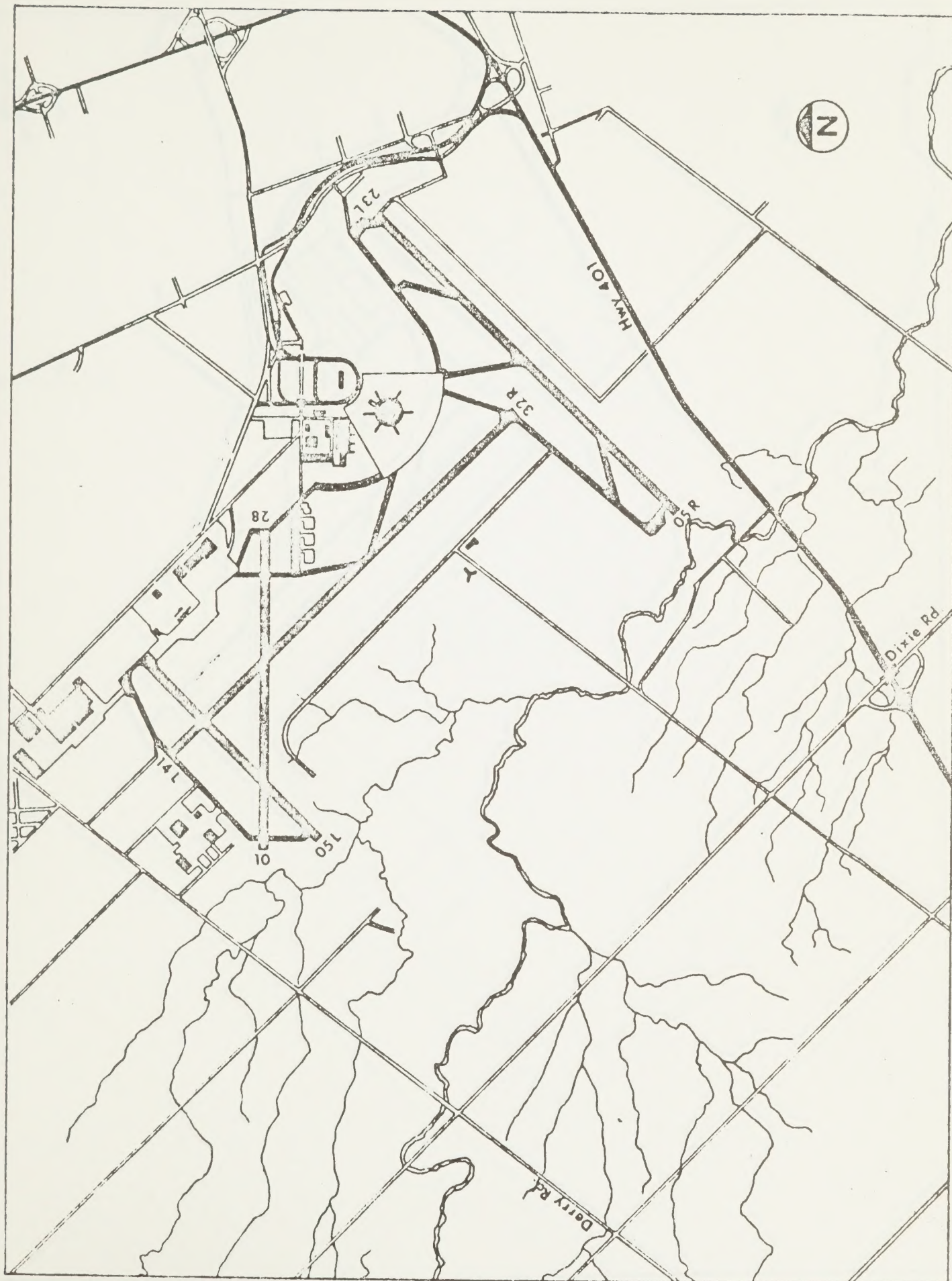
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A. REVIEW OF THE AIRPORT'S PLANNING SINCE 1968

I MALTON

- In 1968 it was recognized that the current facilities at Malton could not provide adequate services past 1970. A plan was put forward to expand the present site as shown in the following three graphs.
 - (i) Malton (present).
 - (ii) Malton (program expansion 1971).
 - (iii) Malton (program expansion 1985).
- This proposal was put forward and later withdrawn by the Federal Transport Minister. The basic cause was public concern over noise, air pollution and urban land consumption.
- Directions were then given to a Federal Government task force to find a new site for the Toronto International Airport.

TUKONIO AIRPORT - AT PRESENT

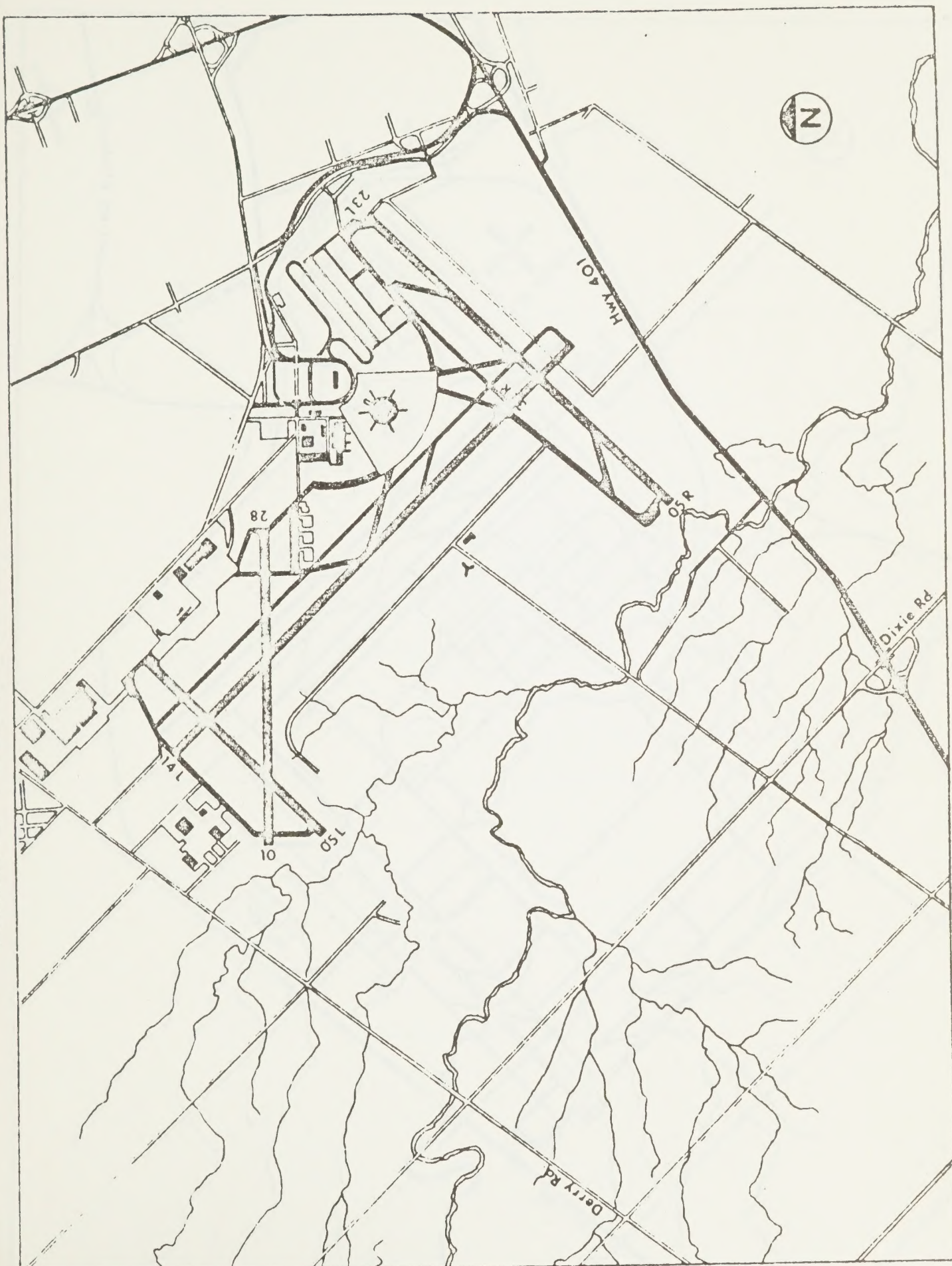




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SECTION: MISSILE DEVELOPMENT





II EXTERNAL SITE ANALYSIS

(a) Federal-Provincial Cooperation

- A federal task force - (A.P.Y. - airport planning team Toronto) was appointed and devised a work program to determine the optimum site.
- A federal-provincial planning team examined a large number of potential sites and reduced this number to four (as shown on the following map).
- Each of these sites was examined in a clinical manner after having made a number of important assumptions (see assumptions).
- The data gathered on each site was examined and the comparative evaluation of each site was made using a jointly-determined set of criteria (see criteria).
- The clinical studies and site evaluation produced a factual comparison of the various sites (see site analysis).
- This technical evaluation was presented to the Federal Government in May 1970.



(b) Basic Assumptions Inherent in the Provincial Evaluation

It should be stressed at the outset that there are certain basic assumptions inherent in the evaluation of the potential sites by the Government of Ontario. These assumptions must, by their nature, condition any conclusions or recommendations derived from the analysis previously conducted. These assumptions are;

- i) that the present allocation of investment among the various modes of transport is assumed to continue. That is the role that air transport will occupy in the future transportation system is to remain constant and will not be altered by major immediate technological changes and that no large diversions of traffic will occur benefiting inter-city ground transportation. This particular element is apt to vary significantly within the next two decades.
- ii) that a second major airport will be constructed in a site remote from the present facility located in Malton and further that the choices for the location of the second airport are limited to those four sites that have been subjected to clinical study. This assumption states that for social and environmental reasons it is not possible to expand the

current facilities at the present site (Malton) so as to accommodate all the future requirements of the region. This assumption was the basis of the early evaluation of the four sites remote from Malton, this was not held constant when the expansion of Malton became a credible option.

- iii) that the airport facility as proposed will be open to public use no earlier than 1976 and no later than 1982.

(c) Goal, Objectives and Criteria

- | | |
|--------------------|---|
| <u>Goal</u> | To select the optimum location for a second major Toronto airport with due regard to safe and efficient airport operations, long-range planning objectives, social/environmental effects and costs. |
|
 | |
| <u>Objective A</u> | To minimize the aggregate net costs as compared to benefits of the airport and its associated complex. |
| <u>Objective B</u> | To minimize the social and environmental disbenefits of the airport. |
| <u>Objective C</u> | To maximize airport operating efficiency. |

These were the objectives of the technical committee. However, a basic Ontario consideration has always been (in conjunction with Objective B) to achieve the development pattern which has been declared by the Government to be the basis of all Provincial programs. (Design for Development: Toronto-Centred Region)

Criterion 1. Regional Planning Effect

The airport, as defined, must conform to and assist in the implementation of the overall development concept for the region.

Standards

1. Develop a well-structured, well-serviced, two tiered urban corridor along the Lake Ontario shore from Bowmanville to Hamilton with strong emphasis on early development of the eastern part of the corridor. (Zone 1)
2. Develop a nodalized urban axis in the commutershed (Zone 2) north of Metropolitan Toronto.
3. On either side of this axis, i.e., in the northwest and northeast districts of the commutershed, adopt a policy of retaining the land for agriculture, recreation and conservation. Focus limited growth on existing communities. (Zone 2)
4. In the peripheral zone (Zone 3) develop urban nodes of significant size at Barrie and Midland in the North Simcoe district and another at or in the vicinity of Port Hope-Cobourg. This reflects the policy of beginning decentralization of excessive growth pressure in Metropolitan Toronto.
5. Maintain the Georgian Bay coast, Lake Simcoe, the Kawartha Lakes and the Niagara Escarpment as regional recreation areas along with the valley systems of the commutershed.
6. Adopt transportation policies that will stimulate as well as serve the proposed Development Concept.

Criterion 2. Disruption of Cultural Patterns and Life Styles

Standards

- (a) Degree of physical interference within airport site and noiseland.
Number of non-farm residential units displaced.
Number of farm units displaced.
Number of seasonal units displaced.
Number of recreational facilities displaced.
- (b) Severance of cohesive community structure
 - number of people who will suffer a loss of community facilities (i.e., schools, hospitals, etc.)
- (c) Degree of disruption of social patterns - patterns caused by barrier effect of airport.
 - subjective evaluation of social disruption
- (d) Degree of destruction to areas of high scenic value
 - subjective evaluation of landscape features.

Criterion 3. Minimize the Harmful Effects of Pollution

Standards

(a) Noise effects

- number of people within 100 CNR
- number of people adjacent to noiseland at present.

(b) Air pollution

- number of people within an area where maximum anticipated levels of pollution in ppm is likely to be exceeded.

Criterion 4: Ecological Effects

The degree of physical interference with natural habitats and resultant damage to living organisms and to the balance of dependent biological systems.

Within these areas the ecological effects may be ascertained in terms of:

- (a) Degree of destruction or damage to areas of unique or unusual ecological structure.
- (b) Degree of destruction or damage to unique or unusual species.
- (c) Loss of general capability to support wildlife.
- (d) Loss of general capability to support natural vegetation (including forests).
- (e) Degree of susceptibility to soil erosion damage.

III MALTON EXPANSION PROPOSAL

Due to the extremely high cost factors inherent in any external site, the planning team was given directions to initiate an intensive study of the possibility of expanding the present facilities at Malton.

The following Public Policy constraints were considered to be inherent in any Malton expansion:

- i) Must provide sufficient facilities to service all potential demands up to the year 2000 without:
 - requiring additional urban lands
 - increasing the noise levels appreciably over those currently existing.
 - increasing levels of air pollution. These pollutants must be contained within the present airport noise lands.
- ii) The Federal Government must agree to purchase any property within the noise lands at existing market values. This land can only be returned to productive use in a compatible capacity.
- iii) All ground transportation serving the airport must be integrated with the provincial, municipal and regional ground system used to serve the urban areas. There can be no exclusive transportation corridors for the airport.
- iv) The economic and social effects must create a spatial distribution compatible with regional and provincial plans.

Results

The Malton expansion might be accomplished by placing an additional runway "close in" adjacent to the existing runway and by building a third terminal. (See map).

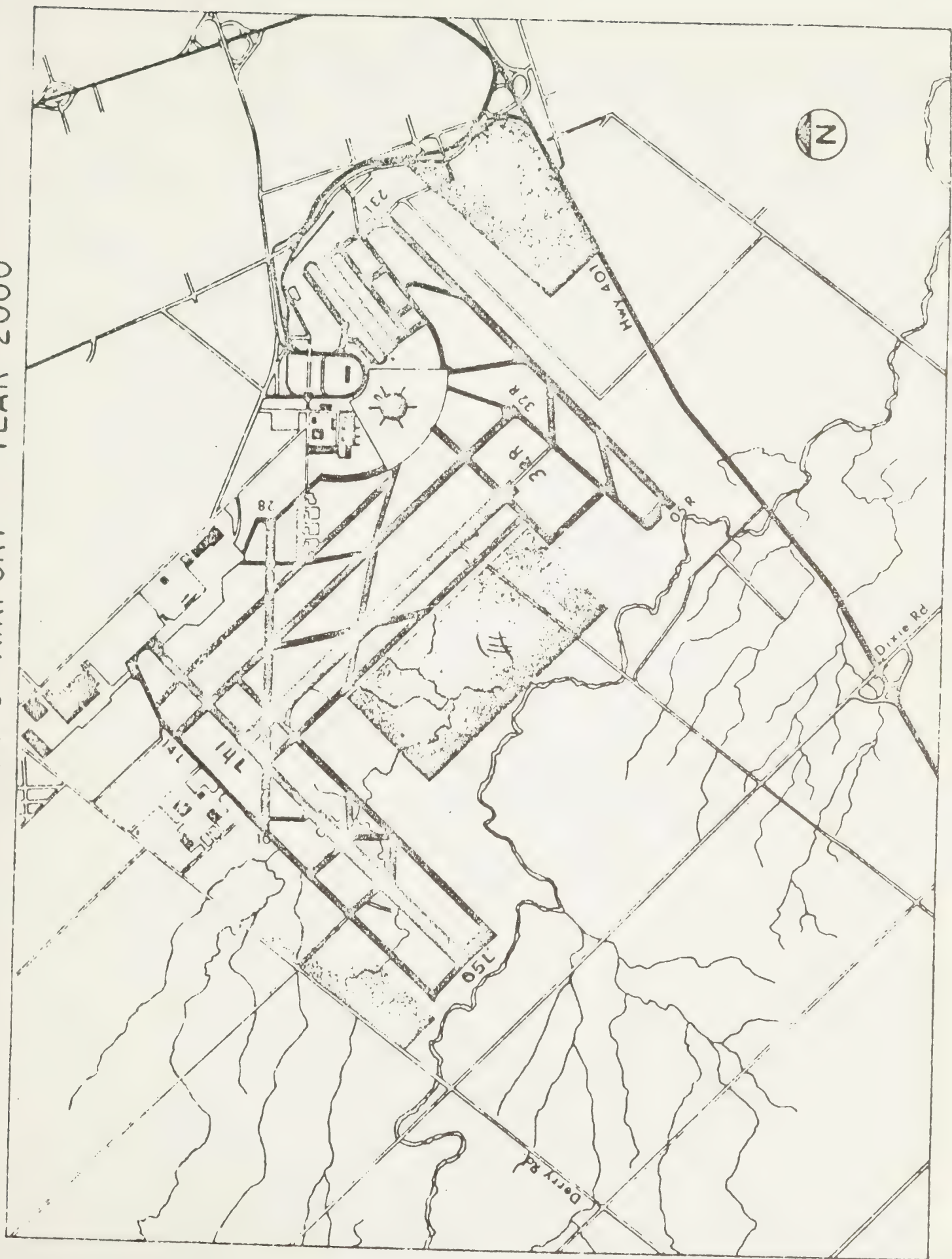
Costs - the cost of this alternative ranged from 35% to 50% below the cost levels associated with the external sites. (See chart).

Ground-Transportation system - the ground transportation system could not handle the expected traffic after 1990 unless passenger-handling methods were altered and a system of mini-terminals connected by a rapid-transit facility was instituted. (See map)

Regional Planning - Malton expansion would reinforce the present trend to excessive westerly growth and congestion, which the Toronto-Centred Region development concept is designed to alleviate. Malton expansion would also require greatly strengthened public controls on land use, earlier expansion of transit facilities and accelerated investment in hard services.

- If Malton is expanded, there would be a reduction in a potential eastern stimulus. This would produce a substantial pressure on the government to find other appropriate stimuli to accomplish this objective and maintain the thrust of government policy.

REVISED TORONTO AIRPORT — YEAR 2000



SUMMARY

AIRPORT SITE RANKING

Criteria	<u>SITES</u>				<u>Malton</u>
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	
<u>COST</u>					
Capital	5	2	4	3	1
User	<u>4</u>	<u>5</u>	<u>2</u>	<u>3</u>	<u>1</u>
TOTAL	<u>5</u>	(3)	<u>2</u>	(3)	<u>1</u>
<u>ENVIRONMENTAL</u>	<u>4</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>*</u>
<u>PLANNING AND DEVELOPMENT OF REGION</u>	(2)	<u>1</u>	<u>5</u>	(2)	<u>4</u>

(-) No Significant Difference

* Not compared directly because of existing airport. However, Malton has a substantial environmental impact, which expansion would aggravate.

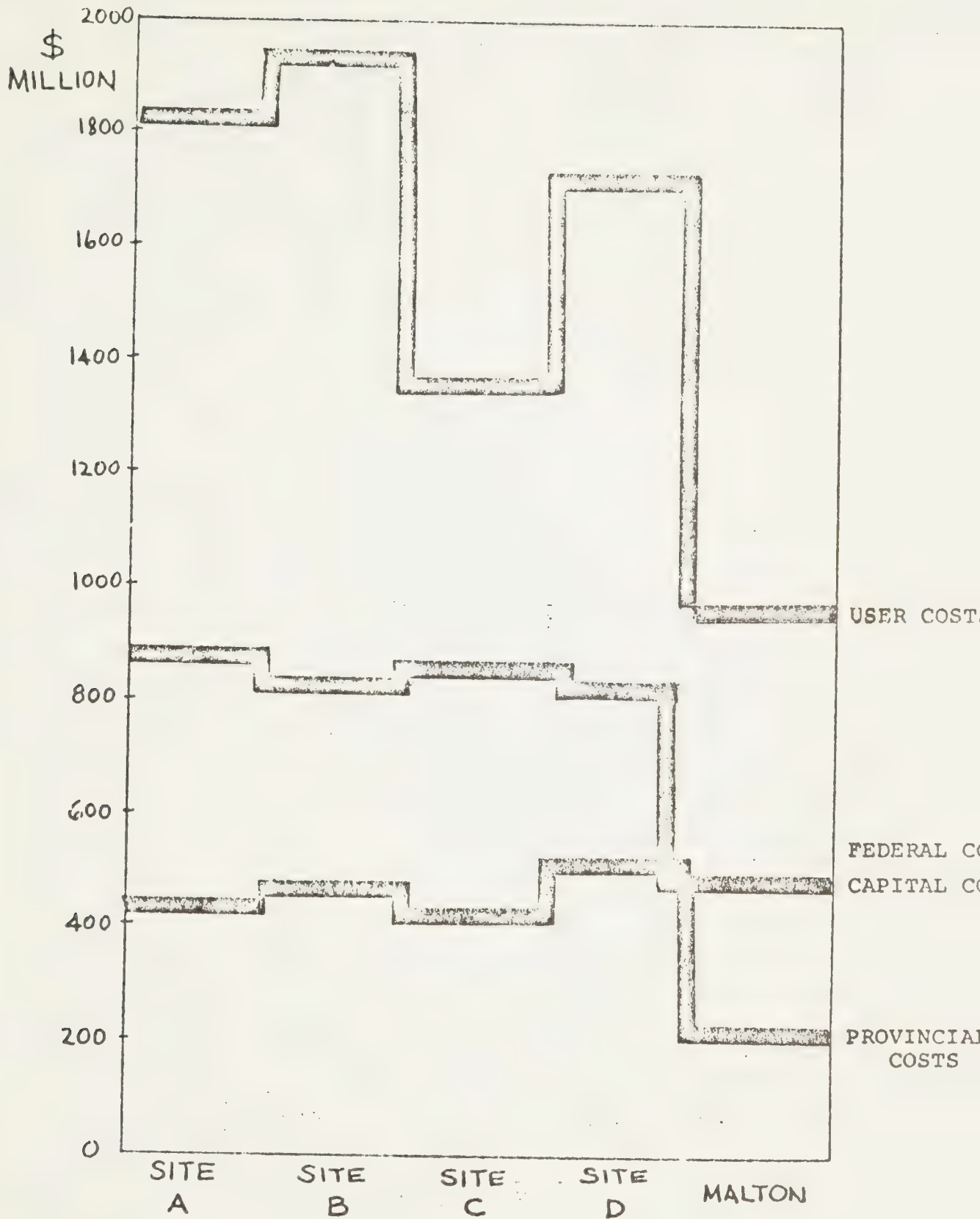
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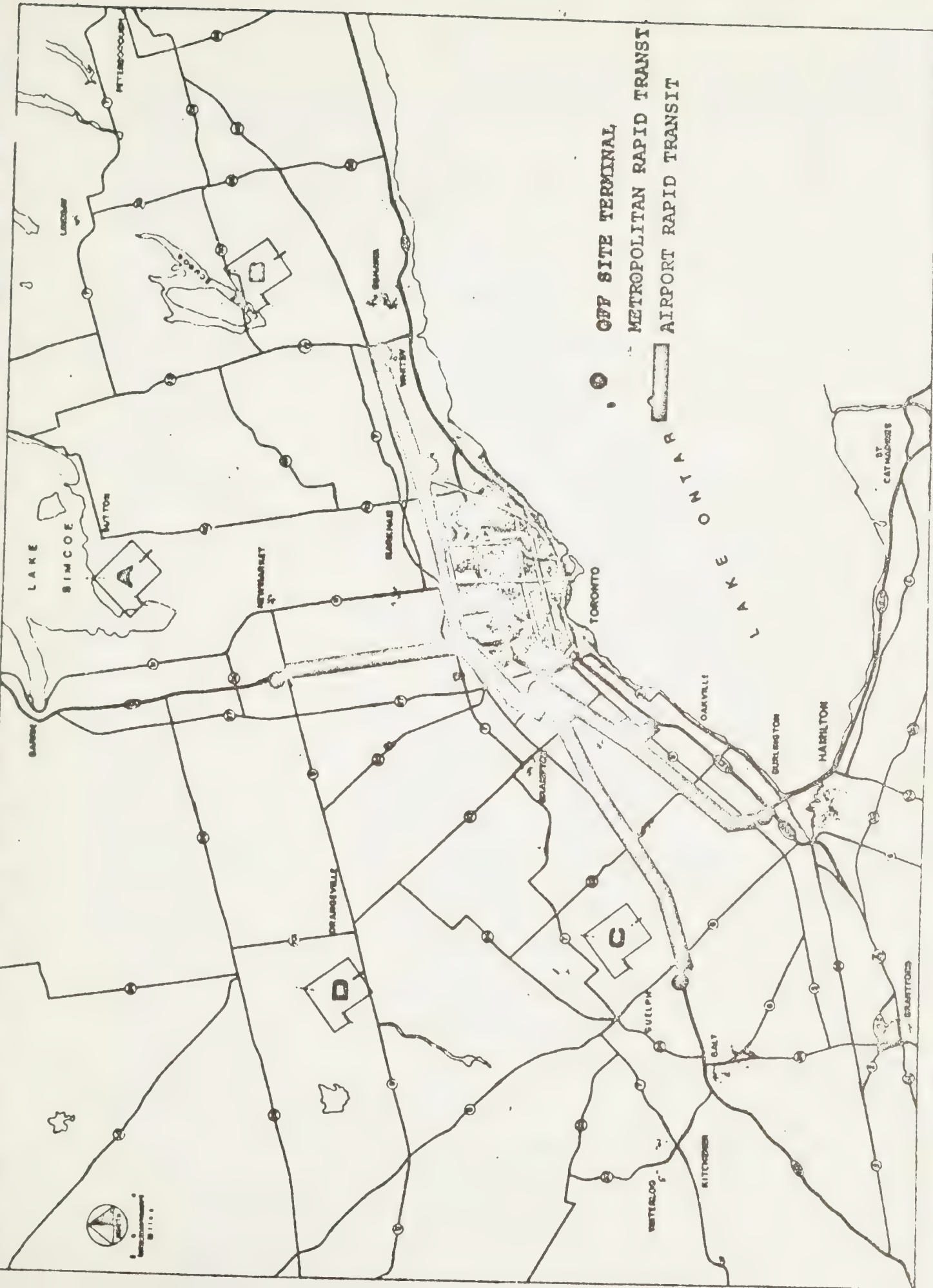
S I T E S

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>MALTON</u>
<u>COST</u>					
TOTAL COST (\$ BILLION)	3.18	3.30	2.66	3.20	1.72
CAPITAL COST (\$ BILLION)	886.4	829.5	863.6	832.8	469.4
ESTIMATED PROVINCIAL COST(\$ MILLION)	432.3	434.0	406.9	495.1	210.2
ESTIMATED FEDERAL COST (\$ MILLION)	929.2	960.6	813.2	963.6	549.4
USER COST (\$ MILLION)	1,821.1	1,902.2	1,342.3	1,737.7	960.9
<u>ENVIRONMENTAL DISRUPTION</u>					
POLLUTION (AIR & NOISE)	HIGH	MODERATE	MODERATE	MODERATE	*
CULTURAL & LIFE STYLES	HIGH	MODERATE	MODERATE	MINIMUM	
ECOLOGICAL	HIGH	MINIMUM	FAIRLY HIGH	MINIMUM	
<u>RELATION TO REGIONAL DEVELOPMENT PLAN</u>	CONFORMS	ASSISTS POSITIVELY	DISRUPTS	CONFORMS	CREATES PROBLEMS
<u>COMMUNITY DEVELOPMENT COSTS(\$ MILLION)</u>	880.5	733.8	874.3	870.4	NOT AVAILABLE

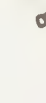
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SITE DEVELOPMENT COSTS





OFF SITE TERMINAL
METROPOLITAN RAPID TRANSIT
AIRPORT RAPID TRANSIT



B. STRATEGY ALTERNATIVES

Having developed the above data and evaluation, it is our understanding that the Federal Government task force has developed the following strategies or alternatives.

ALTERNATIVE I - EXPAND MALTON ONLY

ALTERNATIVE II - BUILD A MAJOR FACILITY AT ONE OF THE
EXTERNAL SITES AND CONTINUE MALTON IN
A SHORT-HAUL ROLE.

ALTERNATIVE III - EXPAND MALTON AND PURCHASE A LAND BANK
AT ONE OF THE EXTERNAL SITES.

This land bank would be for the purpose
of ensuring environmental control, i.e.,
if the aircraft developing technology
does not succeed in containing noise
and air pollution then Malton's role
would be curtailed and the alternate
(external) expanded.

ALTERNATIVE IV - EXPAND MALTON AND DEVELOP A SYSTEM OF
REGIONAL AIRPORTS WITH MALTON HAVING A
CENTRAL AND LONG-HAUL ROLE.

Primary regional airports would be
located at - Oshawa

- Hamilton

ALTERNATIVE V - CLOSE MALTON AND DEVELOP A NEW FACILITY
AT ONE EXTERNAL SITE (POST 1982).

IMPLICATIONS OF ALTERNATIVES FOR THE PROVINCE OF ONTARIO

ALTERNATIVE I

- Advantages
- lower overall costs - savings to both public and private sector.
 - minimizes user cost and ensures the highest degree of utilization of capital.
- Disadvantages
- relies on improving aircraft technology to protect the environment.
 - requires accelerated capital investment in hard services such as water and sewage.
 - requires accelerated ground transportation.
 - requires intense public controls over land use within the western lakeshore corridor, if Toronto-Centred Region development structure and schedule is to be maintained, i.e., growth east.

ALTERNATIVE II

- the advantages and disadvantages are dependent upon which external site is chosen; however the primary advantages are:
 - is not dependent upon aircraft technology to maintain the environmental control.
 - will reduce the growth pressure on the western lakeshore corridor.
 - allows this large capital investment to stimulate a low growth area; such as the eastern lakeshore corridor.



ALTERNATIVE I
MALTON EXPANSION ONLY

MAJOR EMPHASIS ON ONE
SITE OUTSIDE MALTON,
AND MALTON IN SHORT
HAUL ROLE



Primary Disadvantages are:

- increase in costs of approximately \$1.2 billion overall and \$400 million in capital costs.
- will decrease the productivity of this sector of the economy.

ALTERNATIVE III

Advantages

- this alternative will have all the advantages of expanding Malton (Alternative I) plus:
 - it will reduce the reliance on technology to control environmental effects.
 - it will reduce some of the growth pressures at Malton and may protect it from possible noise expansion.

Disadvantages

- this alternative has all of the disadvantages as alternative I (modified as stated above) plus:
 - * - it will create a situation in which the Government of Ontario will lose its ability to plan a major element in the regional structure.
 - creates a risk of capital obsolescence in all capital facilities (particularly ground transportation and ancillary services.)
 - creates uncertainty for industrial and community development.

ALTERNATIVE III
MAJOR EMPHASIS ON
MALTON, AND LAND
BANK PURCHASED ON
ONE EXTERNAL SITE

MAJOR EMPHASIS ON
MALTON, AND LAND
BANK PURCHASED ON
ONE EXTERNAL SITE



ALTERNATIVE IV

Advantages

- this alternative has all of the advantages of alternative III plus:
 - will create a greater degree of certainty and will allow increased public control of the planning framework.
 - will increase the autonomy of the Regional centres of Oshawa and Hamilton.
 - will provide an expanded range of air services and will reduce user costs.

Disadvantages

- this alternative has all the disadvantages of alternative I; however it will reduce the effects by diverting traffic to other airports. In addition, it will:
 - increase the operating costs of the system over using Malton alone,
 - increase the amount of capital facilities required.
 - increase the amount of land in the region that is subject to noise controls.

ALTERNATIVE IV
 MAJOR EMPHASIS ON
 MALTON AND THE
 DEVELOPMENT OF
 REGIONAL AIRPORTS

1



ALTERNATIVE V

Advantages

- consolidates investment in one geographical area and will increase the efficiency of the air transport system.
- provides a stable planning base for regional development (depending on external site chosen).
- reduces growth pressure on western corridor (depending on external site chosen).
- eliminates environmental degradation at Malton.

Disadvantages

- increased costs and higher level of investment needed than if Malton expanded.
- increased user costs.
- high degree of capital obsolescence in present airport and industrial capital located at and adjacent to Malton. This factor may be reduced if sufficient time is allowed for capital withdrawal.



ALTERNATIVE V

DEVELOPMENT OF
ONE EXTERNAL SITE
WITH MALTON SHUT
DOWN AFTER 1982

IMPORTANT COMPONENTS OF ALL MALTON EXPANSION ALTERNATIVES

- (a) Development of a system of mini-terminals.
- (b) Purchase offer to buy all residential lands within the noise lands.
- (c) Development of a "close in" runway concept to eliminate the expansion of noise and air pollution.
- (d) Noise monitoring system for the public.

IMPORTANT COMPONENTS OF ALL FIVE ALTERNATIVES

- (a) Development of an integrated ground transportation system.
- (b) Control of noise and air pollution to minimize these effects on the residential populations.
- (c) A purchase of noise lands and their incorporation into a land-management program.

AIRPORT BOUNDARY

EXISTING RUNWAY

PROPOSED RUNWAY

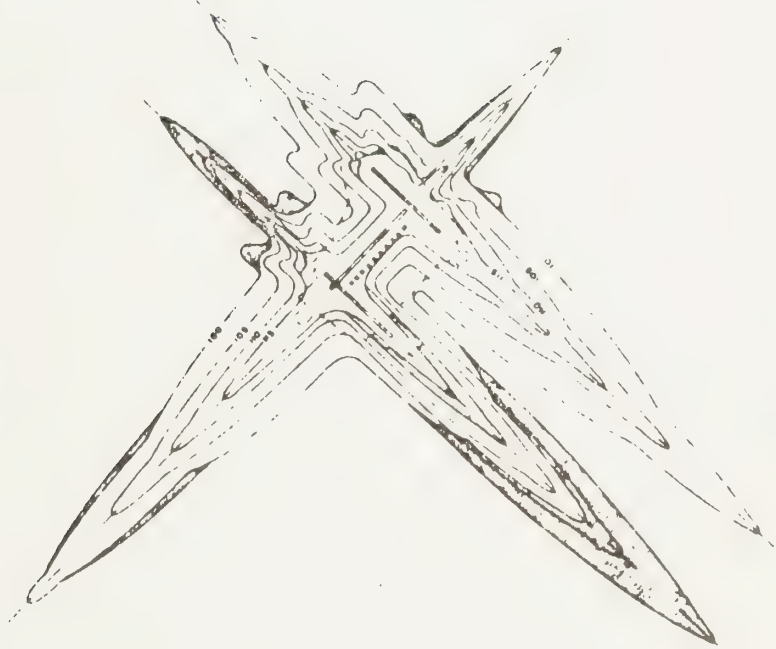
REDUCTION OF CNR CONTOURS

WITH TORONTO II SPLIT

REDUCTION OF 100 CNR CONTOUR

REDUCTION OF 115 CNR CONTOUR

TIA. MALTON
COMPOSITE NOISE
RATING CONTOURS



C. THE CRITICAL FACTORS IN ALTERNATIVES

1. The improvement in aircraft technology.
2. The ability to control aircraft using "close in" runways.
3. The forecasts of air passenger traffic.
4. The ability to control land uses.
5. The ability to sustain capital costs.

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